

CLAIMS

1. An immunogenic detoxified protein comprising the amino acid sequence of subunit A of an *E.coli* heat labile toxin (LT-A), or a fragment thereof, wherein at least amino acid Ala-72 in said sequence or fragment is mutated.
2. An immunogenic detoxified protein according to claim 1; wherein Ala-72 is mutated by substitution.
3. An immunogenic detoxified protein according to claim 2, wherein Ala-72 is substituted with an arginine residue.
4. An immunogenic composition comprising an immunogenic detoxified protein according to any one of claims 1 to 3 and a pharmaceutically acceptable carrier.
5. An immunogenic composition according to claim 4 further comprising an adjuvant.
6. An immunogenic composition according to claim 4 or claim 5 further comprising a second immunogenic antigen.
7. The use of a detoxified protein according to any one of claims 1 to 3 as an adjuvant.
8. A method of vaccinating a mammal against an enterotoxigenic strain of *E.coli* comprising administering an effective amount of an immunogenic detoxified protein according to any one of claims 1 to 3.
9. A DNA sequence encoding an immunogenic detoxified protein according to any one of claims 1 to 3.
10. A vector comprising a DNA sequence according to claim 9.
11. A host cell transformed with the vector of claim 10.

Sub
A2

12. A process for the production of an immunogenic detoxified protein according to any one of claims 1 to 3 comprising culturing a host cell according to claim 11.

5 13. A process for the production of a DNA according to claim 9 comprising the steps of subjecting a DNA encoding a wild-type LT-A or a fragment thereof to site-directed mutagenesis.

10 14. A process for the formulation of an immunogenic composition according to claim 4 to 6 comprising bringing an immunogenic detoxified protein according to any one of claims 1 to 3 into association with a pharmaceutically acceptable carrier.

15

15. A method for the prevention or treatment of disease in a subject, comprising administering to said subject an immunologically effective dose of an immunogenic composition according to any one of claims 4 to 6.

ADD BY
on separate
page

Abstract

cont
Step
a2

add
a3